Natural Gas Infrastructure R&D and Methane Emissions Mitigation Workshop

Leak Detection/Fugitive Emissions Monitoring and Advanced Sensors, Controls, Models and Platforms Panel

The Advanced Manufacturing Office (AMO) at the U.S. Department of Energy
Office of Energy Efficiency and Renewable Energy

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Fugitive Emissions in the Oil & Gas Industry

- 90% of controllable fugitive emissions come from only about 0.13% of the components\(^1\)

- The trick is to find those big leakers

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Leak Detection Instruments and Limitations

- **Infrared Leak Imaging Cameras**
  - Do not quantify
  - Expensive

- **Remote Methane Leak Detector**
  - Does not quantify
  - Requires laser reflection background
  - Range 100 feet

- **FTIR Downwind Screening**
  - Does not pinpoint source

- **Hand-held sniffers (OVA, TVA)**
  - Labor intensive testing each source individually
  - Quantification correlation data not useable for repair criteria
Quantification Instruments and Limitations

- **High Volume Sampler**
  - Capacity (10 cfm)

- **Anemometers (vane, hot-wire)**
  - Access to sources

- **Bagging (flow-through, calibrated bags)**
  - Access to / enclosure of sources
  - Temperature

- **Turbine meters**
  - Adaptation to source

- **Acoustic detector with calibration equation**
  - Tricky to use properly
What does the industry want/need?

- “Cheap, installed leak sensor”
  - Leaks alert the operator
  - Adsistor ring combined with audio/visual signal

- Visual Guide for estimating quantity of emissions viewed by IR Camera
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